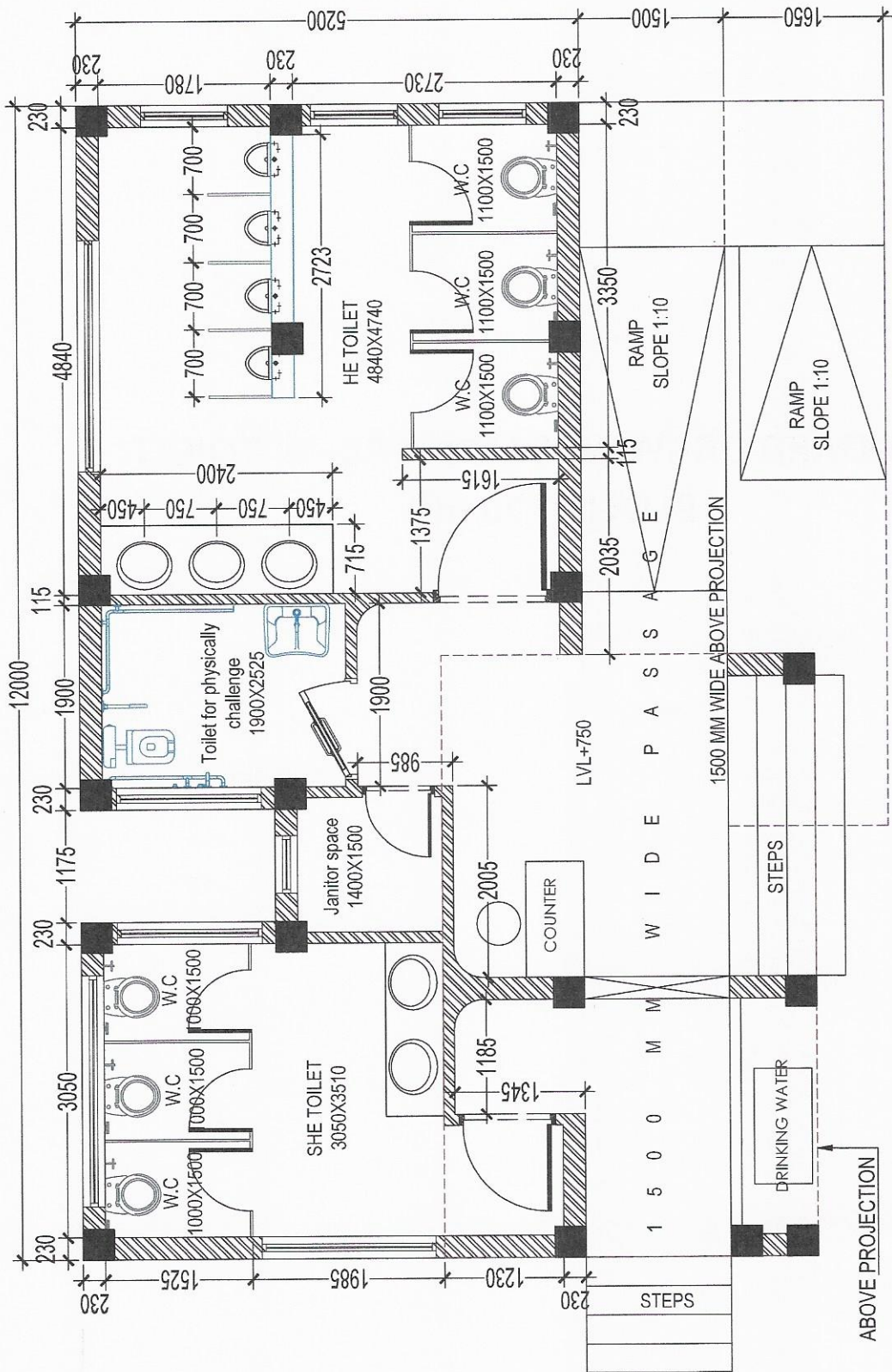


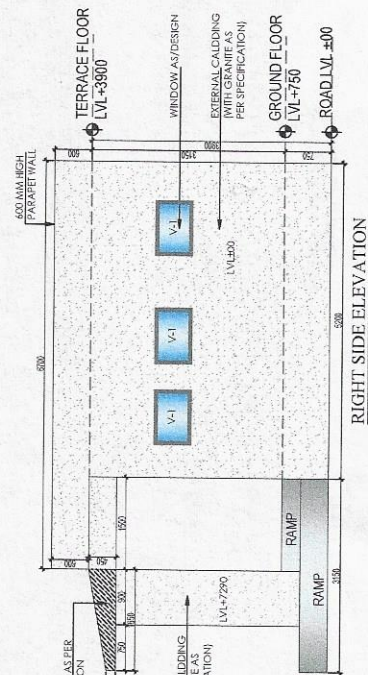
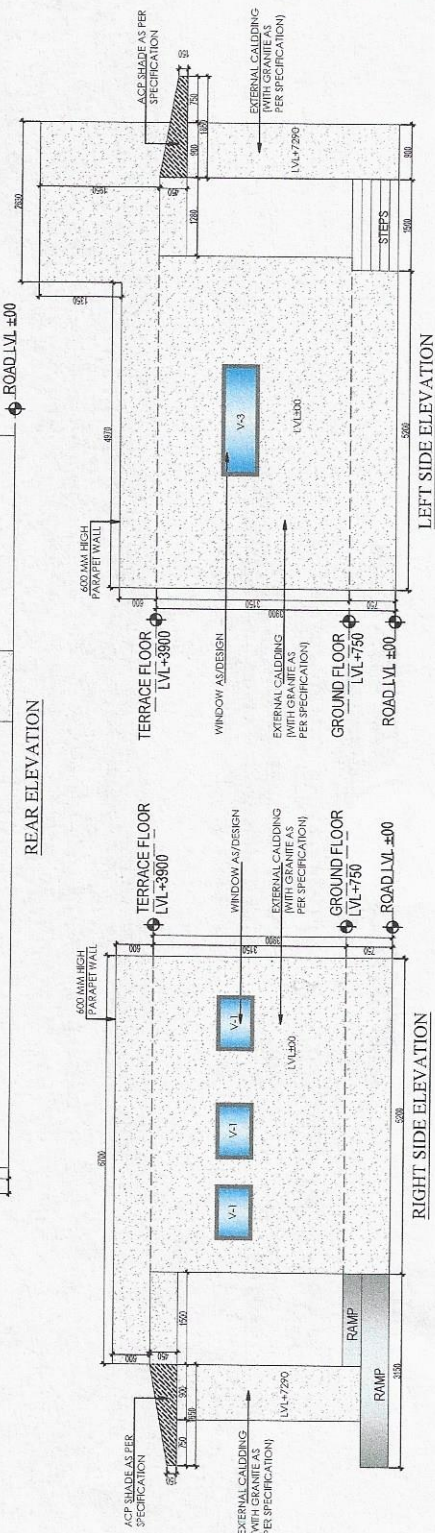
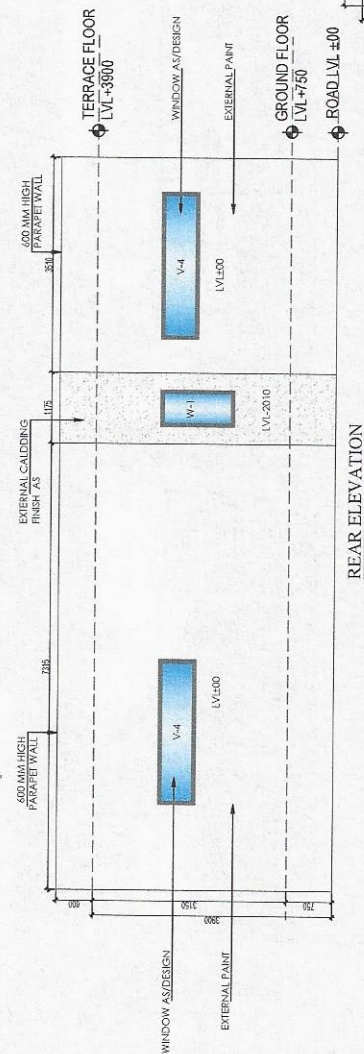
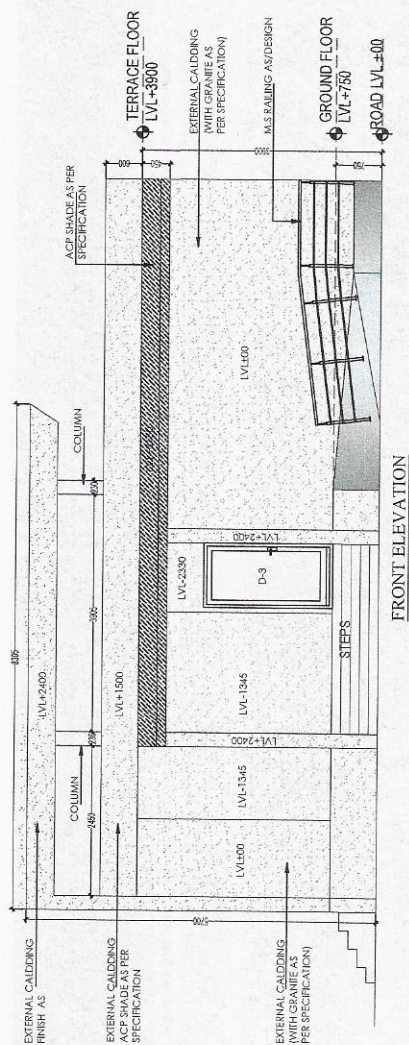
**STANDARD DRAWINGS FOR TYPE-‘B’ TOILET
BLOCK (~70 m²)**

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NATIONAL HIGHWAYS AUTHORITY OF INDIA			
STANDARD DRAWING FOR A TOILET 70sqm			
TOILET LAYOUT			
DATE:- 24-03-2026	DRG. NO.:- 001	APPROVED:-	
DESIGNED BY:-	RECOMMENDED:-	MEMBER (P)	
DESIGN ENGINEER	GM/CGM		

Handwritten signature/initials.



NATIONAL HIGHWAYS AUTHORITY OF INDIA

STANDARD DRAWING FOR A TOILET 70sqm

TITLE:-

ALL SIDES ELEVATION

DATE:- 24-03-2026	DRG. NO. :- 003
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DRG. NO. :- 003

DESIGNED BY:-	RECOMMENDED:-	APPROVED:-
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RECOMMENDED:-

APPROVED:-

DESIGN ENGINEER

GM/CGM

MEMBER (P)



10/2/1

Detailed Specifications for Toilet Block				Annexure-III
S.No	Item	Description	Recommended Make / Approved Material	Remarks
1	EARTH WORK			
	Anti Termite Treatment-	For creating a continuous chemical barrier under and around the column pits, wall trenches, basement excavation, top surface of plinth filling, junction of wall and floor along the external perimeter of building expansion joints, over the top surface of consolidated earth of which approach is to be laid surrounding of pipes and conduits etc. complete as per specification.	Bayer (Premise/Temprid), Syngenta, FMC, UPL, and Pidilite (Terminator) and equivalent	
2	CONCRETE WORK			
i)	PCC work :-	Using cement concrete M15 grade in foundations/ plinth and bedding including spreading, ramming, consolidation		
ii)	PVC Sheet	Providing & Laying one layer of LDPE sheet of 100 Microns thick approved quality on Plinth		
iii)	M -25	Ready mix concrete manufactured in fully automatic Batching Plant and transported to site in transit mixer for having continuous agitated mixer, manufactured as per approved mix design of specified grade of RCC work including pumping of R.M.C. from transit mixer to site of laying.		
iv)	TMT Reinforcement Work	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete all level. Thermo-Mechanically Treated bars of grade Fe-500D or more.	TISCO, SAIL, VIZAG STEEL (RINL), JISCO, JVSL, LLOYD STEEL, ESSAR and equivalent	
3	MASONRY WORK	Brick masonry with F.P.S. bricks of class designation 75 in foundation and plinth with bricks at any height/ position using Cement mortar 1 : 4 (1 cement : 4 coarse sand)		
i)		Providing and laying Autoclaved Aerated Concrete (AAC) blocks masonry 150mm/230mm/300mm thick with Grade-I AAC blocks in superstructure above plinth level. Specific partition wall between WC and Urinals shall only be upto lintel /Door height.		
4	FINISHING			
i)	Internal Plaster :-	20 mm thick in CM 1:4		
ii)	External Plaster :-	20mm thick in two coats first (12mm) in CM 1:4 & second (8 mm) in 1:4		
iii)	Ceiling Area :-	Providing and applying cement plaster up to 6mm thick in CM 1:3 with sponge finish on all interior areas and surfaces with erection of scaffolding in all positions including all moldings, grooves, cornices, chamfers, fixing of wire mesh over joint of beam & brick work and curing all complete.		
5	WINDOWS (Fixed)	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : Powder coated aluminium (minimum thickness of powder coating 50 micron)	Jindal/Hindalco and equivalent	
6	Doors and Fittings	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.	CenturyPly, Greenply, Duro Door and equivalents	
i)		Architectural door hardware	Godrej, doorset, dormakaba and equivalent	
7	FLOORING WORK/DADO WORK/BASIN COUNTER/JAMB WORK	Polished Granite stone flooring using 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement		
i)		Granite stone of size 18 mm thick on Porch, stairs and ramp including skirting		
ii)		Vitrified tiles in different sizes fixing using cement based high polymer modified quick set tile adhesive		
iii)		600X1200X10 for toilet walls	KAJARIA, SPARTEX, JOHNSONS, NAVEEN, SOMANI, BAJAJ, and Equivalent	KAJARIA-SEILO MARFIL
iv)		600X1200X10 for toilet Floors Matt		
v)		Grouting the joints of flooring tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade(0.10 kg of hardener and 0.20 kg of resin per kg), including filling/grouting and finishing complete as per direction of Engineer-in-charge.	MYK (LATAPOXY), Pidilite (Roff), Weber, and Kajaria Gresbond and equivalent	
vi)		polished granite stone slabs up to 18 mm thick for 600 mm width for basin counter platform with		
vii)		rounding, nosing on a bed of 25 mm thick cement mortar 1:4		
viii)		Granite stone up to 16 to 18mm thick of window jambs frame top, bottom and sides. The marble jamb shall be fixed with stone adhesive/white cement		
ix)		Granite stone up to 16 to 18mm thick of door jambs frame top, and sides. The marble jamb shall be fixed with stone adhesive/white cement		
8	PAINTING			
i)	Putty :-	Providing and applying white cement based putty (of approved brand) in 2 coats on all internal/external plaster surfaces and ceiling surface to be painted	JK, WALCARE, BIRLA, and equivalent	
ii)	Interior Paint :-	Acrylic paint of all shades to give an even shade including all scaffolding and applying two or more coats.	SHALIMAR, ASIAN, BERGER, NAROLAC, DULUX and equivalent	asian-L146, narolac-2953P

S.No	Item	Description	Recommended Make / Approved Material	Remarks
iii)	External Area :-	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade. New work (Two or more coats applied @ 1.43 ltr/ 10 sqm. over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm).	SHALIMAR,ASIAN,BERGER,NEROL AC, DULUX and equivalent	asian coral treasure-0975, nerolac mission beige-2078P
9	WATER PROOFING	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations:		
9		(a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment.		
		(b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.		
		(c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge		
		(d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement : 4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep.		
		(e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test."All above operations to be done in order and as directed and specified by the Engineer-in-Charge :		
		With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	Pidilite/Sika/Fosroc and equivalent	
10	Front Projection Façade Work	1) Providing and fixing on site one laser cut grill made of 3mm/4mm ACP sheeting dark grey color with back support frame of aluminium pipes 2) Covering Common Area/Ramp/Steps with polycarbonate 3 mm with ms pipe grid , aluminium strip joint caps and epdm rubber with front elevation of ACP CNC	Granite- Chime Pink/Onida Orange/Colombo juparana granite. ACP- Alstone-AN/506, Aiudecor EC-02 Tuscan Clay (Make list/Color Palette for Granite and ACP Sheet enclosed)	Right Side and Left Side Elevation with Granite Cladding and Front Side Elevation with ACP material along with granite cladding, as specified in the drawing.
i)		Stone work (machine cut edges) for wall lining etc. (vencer work) upto 10 metre height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (To be secured to the backing and the sides by means of cramps and pins which shall be paid for separately) :		
ii)		Granite stone - Exposed face machine cut and table rubbed with rough backing : 18 mm thick granite		
11	RAILING WORK/SS Fixtures	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).		
12	WC Cubical	Thickness of Compact Laminate : 12mm Color of HPL Boards: Single Standard Compact Color Special Remarks For Customization : : Size of Cubicle : 1100mm (W) X 1300mm (D) X 2003mm (H) . Door Size : 1750mm (H) x 600mm (W) Divider Size : 1820mm (H) Overall Height Of Cubicle : 2003mm (Including bottom Gap of 150mm) Accessories: Standard - Merino Make Aluminum, Stainless Steel - 304 Grade accessories) a) Aluminum "U" Channel b) Aluminum "F" Channel (Only Corner Unit)d) Aluminum Top Rail e) SS Coat Hook f) SS Privacy Thumb turn c/w Occupancy Indicator g) SS Door Knob h) SS Spring Loaded Butt Hinges with Cover i) SS Adjustable Foot 316 Grade k) Screws & Wall Plugs SPECIAL NOTE - Warpage Criteria is 3.0 mm/1000mm for MRS panels as per EN standard- 438	Merino,century,greenlam and equivalent	
13	Urinal Modesty Panels	Providing & Fixing in position urinal partition made of standard marino HPL board with all fixtures and fittings complete as per direction of engineer in charge	Merino,century,greenlam and equivalent	
14	Water Supply pipe	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.	Supreme/Prince/Finolex/Oriplast and equivalent	
15	Drain pipe	Providing and fixing uPVC P/S trap(Type-B, IS:13592) of self cleansing design with or without vent arm complete, including cost of cutting and making good the walls and floors. 110mm outer dia inlet and 110 mm outer dia outlet UPVC as per IS:13592	Supreme/Prince/Finolex/Oriplast and equivalent	
16	WC	Providing and Fixing of vitreous china single trap syphonic pattern having back inlet, supporting chair wall hung water closet withflush valve and CP brass flush bend (European type) Wall Hung water closet with seat and lid, with C.P. brass hinges and rubber buffers, adapter, rubber joints fixed to W.C., C.P. brass screwed washers including cutting and making good the walls and floors wherever required and HDPE we pan connector including jointing with white cement coomplete in all respects.)	CERA, Hindware, Parryware ,Jaquar and equivalent	Jaquar-ONS-WHT-10953B1UFSM, CERA-cat.no-S1044142

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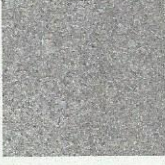
S.No	Item	Description	Recommended Make / Approved Material	Remarks
17	WB	Providing and fixing white color vitreous China flat back, counter Top wash basin with R.S. or CI bracket and 32 mm dia outlet, with brass C.P. wall cap and extension pieces, 15 mm dia C.P. brass angle stop cock with 10mm dia C.P. brass connection pipe etc. CP brass chain, CP wall flange, rubber adpoter for waste connection complete, CP brass chain CP waste and CP pipe to wall with CP wall flange and rubber adpoter for waste connection complete, with pedestal of matching model below wash basin, including cutting and making good the walls wherever required.	CERA, Hindware, Parryware ,Jaquar and equivalent	Jaquar-JDS-WHM-25911, cera-cat no.-S2020172
18	URINAL	Providing and fixing fully automatic urinal pot with fixing accessories complete as per direction of Engineer-in-Charge.	CERA, Hindware, Parryware ,Jaquar and equivalent	
19	CISTERN TANK	Providing and Fixing of low noise Concealed cistern, mounting module for brick work with actuation plate with water saving: delayed filling process saves appr. 0.5 l/flush ; Dual Flush - 3 litre and 6 Litre	CERA, Hindware, Parryware ,Jaquar and equivalent	
20	Wash Basin Mixture	Providing and fixing of self-closing wash basin tap high pressure cold and pre-mixed water with a plastic cartridge ; manual actuation and automatic closing action should Comprises mounting accessories for single-hole installation and with technical data: as flow volume 6.0 l/min	CERA, Hindware, Parryware ,Jaquar and equivalent	CERA-F1005453, Jaquar-OPP-15005BPM
21	Bottle Trap	Providing and fixing CP Bottle Trap for basin, sink and urinal.	CERA, Hindware, Parryware ,Jaquar and equivalent	Jaquar-ALD-769250X190
22	Health Spary	Providing and fixing of ABS health spary which can tolerate water pressure up to 6 bar flow pressure with metal hose and holder in Polished Chrome ;	CERA, Hindware, Parryware ,Jaquar and equivalent	
23	PVC Water Tank	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI :12701 marked with cover and suitable locking arrangement and making necessary holes for inlet,outlet and overflow pipes but without fittings and the base support for tank	Sintex/Reno/Aquatech and equivalent	
24	Hand Drier	Supply, installation, testing of stainless steel fully automatic "No Touch" hand drier suitable to operate on 220 volts, single phase 50 Hz, A.C. power.	Dolphy, Euronics, Jaquar, and Dyson and equivalent	
25	Mirror	providing and fixing 900 mm wide beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete	MODI FLOAT GLASS/SAINT GOBEIN, Equivalent	
26	HE/SHE TOILET Signages	Door and/or Directional Signages (Sizes between 225mmx150mm till 600mmx600mm) : Design, Supply of Acrylic multilingual Braille Tactile signages - like Building entrance , Door signages, Name plates, (raised domes) signboards of minimum size 9"X6" (225x150mm) to for doors, specific areas like toilets, water, etc. & directions (without maps or drawings) , designed as per the drawings issued and having 3+2mm thick blue Acrylic non glare base plate, and 0.5mm Thick Aluminium plate at backside, with Upper Case San Serif words made of white acrylic non glare cut out letters of height 15mm raised 0.8mm above base plate and the equivalent word/s written in Hindi with Devnagri non glare acrylic letters of height 15mm raised 0.8mm above base plate. Signage to have a relevant symbol made of white cut out acrylic and raised by 0.8mm above base plate. Grade 1 Braille consisting of raised domes of 1.5 to 1.6mm dia. and spacing as per Braille standards given by GOI to be integral with the sign face and be raised 0.6 to 0.9mm above base plate.Each signboard to be fixed as per manufacturers specifications at the specified locations at a height of 1200mm from FFL and up to the satisfaction of the engineer in charge.		
27	Door Braille Signages	uilding Tactile Door Braille Signages, Providing of Stainless Steel Multilingual Braille Tactile signages "9 X 6" Inches having 1mm non glare matt finish Stainless Steel sheet + 4mm thick acrylic base plate on back side with Upper Case San Serif words made of black acrylic non glare cut out letters of height 15mm raised 0.8mm above base plate and the equivalent word/s written in Hindi with Devnagri non glare acrylic letters of height 15mm raised 0.8mm above base plate. Grade 1/2 Braille consisting of raised domes of 1.5 to 1.6mm dia. and spacing as per Braille standards given by GOI to be integral with the sign face and be raised 0.6 to 0.9mm above base plate.Each signboard to be fixed as per manufacturers specifications at the specified locations at a height of 1200mm from FFL and up to the satisfaction of the engineer in charge.		
28	SWINGING GRAB BAR	Providing S.S. 304 SWINGING GRAB BAR - 750 mm, and of DIA: 32MM, Brush/Matt finished, with safety locking system for preventing accidental falling down, MAKE :Prosafe Living and to be installed on the rear wall of the WC, at the specified location as per accessibility standards and to be installed firmly as per the installation instructions of the product issued by the manufacturer and using the specified hardware and as per the direction of the engineer in charge.		
29	GRAB BAR	Providing S.S. 304 GRAB BAR - 600 mm, and of DIA: 32MM, Brush/matt finished MAKE :Prosafe Living and to be installed on the rear wall, at the specified location as per accessibility standards and to be installed firmly as per the installation instructions of the product issued by the manufacturer and using the specified hardware and as per the direction of the engineer in charge.		
30	WC	Providing and fixing of white vitreous china European raised seat water closet for handicap toilet including providing & fixing CP bolts, nuts, fisher/anchor bolt are required for hangong of WC, exposed low volume compatible dual flush chinaware cistern with CP bolts, nuts, supporting arrangements, bakelite/ poly propylene seat & cover with CP hinges & rubber buffers, WC pan connector (straight/offset type Macfit single body push fit type WC pan connector with factory supplied spring loaded seal guard with integral single mould sealing fins made of flexible EVA body, including bush/adaptor for use with C.I./PP/uPVC Pipe as supplied with the pan connector), wall mounted 32 mm dia seamless stainless steel tube coated with nylon non-slip gripping surface hinged Hand Rail 750 x 100 mm complete with all accessories. Including cutting & making good the walls & floors wherever required.	CERA, Hindware, Parryware ,Jaquar and equivalent	JAQUAR-DIS-WHT-93955P180UF

S.No	Item	Description	Recommended Make / Approved Material	Remarks
31	SANITRY and PLUMBING WORK	Sanitary plumbing, water supply including cold water line, rain water disposal, sewage work (disposal and treatment using modular STP of suitable capacity), toilet fittings (using CP fittings and hidden flushing cistern, sensor based urinal cistern, Hand Dryer (automatic) and soap dispenser, Bottle trap and SS bin (one in each WC cuboidal and one bin in common area) (provision of cover and foot operated) etc. Sanitary Fittings (Counter sunk WHB/Wall Mounted WC/urinal (with 8mm thk toughened glass partitions) and Plumbing Pipes. Overhead tank shall be multi layered HDPE with thermal insulation fitted with automatic pressure pump fittings in the toilet. Automatic Air Freshener spray shall also be provisioned in each block (Gents/ladies/handicap/feeding room).		
32	FEEDING ROOM/Baby Care Room	Nursing counters (baby friendly surface) no sharp edges and hard corners, equipped with WHB, mirror and disposal bin, facilities for changing soggy diapers and seating arrangements		
33	Handicap Toilet	This toilet shall equipped with Toilet paper holder, Grab bar, Low-height washbasin, Wider door with no threshold and Lever-type fittings		
35	PVC Conduit	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required 25mm dia	BAJAJ, FINOLEX, AKG, KALINGA and equivalent	
36	Wiring	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit , with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.	polycab, finolex equivalent	
37	Earth Wire	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required	polycab, finolex equivalent	
38	GI box	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.	Havells, RR Kabel, and Kisaan or equivalent	
39	MCB distribution board	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	MDS/ Havells/ Indo Asian/ Hager/MK SENTRY/ABB or equivalent	
40	SPLIT AC IN BABY CARE ROOM	Air conditioning work to include Supply, Installation, Testing and Commissioning of outdoor & indoor units. The outdoor units to be installed on M.S. frame fixed on outside. The refrigerant and condenset pipes with proper/ suitable insulation to be laid concealed/ surface with proper clamps, etc. Any expenses involved in clearance that may have to be taken & shall be included in the rate. The work includes all necessary civil, minor carpentry works.	HITACHI, CARRIER-AIRCON DAIKIN, VOLTAS, BLUESTAR or equivalent	
41	Solar Power Systems			
a	Rooftop Solar Panel	Provision of minimum 5 kWp capacity Hybrid rooftop Solar Photovoltaic (PV) system.	Rooftop Solar PV systems shall comply with applicable MNRE guidelines, CEA regulations, relevant BIS/IEC standards and local DISCOM requirements, as amended from time to time.	
b	Solar Street Lights	Supply and fixing of All In One Solar LED Street Light of required wattage (Lumen output not less than 10500 lumens) having following specifications - Solar Panel: 1. Solar panel should be made from Monocrystalline cells. 2. The Solar Module Power shall be ≥ 100 Wp. 3. Cell efficiency should be $\geq 21\%$. 4. Module efficiency should be $\geq 17\%$. 5. Glass should be Borosilicate only. 6. Manufacturer should comply to IEC 61215, IEC 61730 & IEC 61701 standards.	BAJAJ/ TRANSRAIL/VALMONT or equivalent	
42		Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit , with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.		
i)		Group A		
43		Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required		
i)		Group A		
44		Wiring of following light point with 1.5 sq.mm FRLS PVC insulated copper conductor cable in PVC conduit recessed including chasing of wall, filling of chases with cement mortar 1:3 mix and /or fixing conduit on surface of wall/ceiling including fixing of saddles etc. including modular range of plate switches, modular cover plate, ceiling rose, surface or deep tee, circuit wiring (2x2.5+1x2.5), 1.5 sq.mm FRLS PVC insulated copper earth wire, etc. complete as required.		
i)		One point controlled by one number 10 Amp MCB (First point)		
ii)		Looping Point above		
45		Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.		
i)		2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire		
ii)		2 X 4 sq. mm + 1 X 4 sq. mm earth wire		
iii)		2 X 10 sq. mm + 1 X 6 sq. mm earth wire (qty assumed from main panel)		
iv)		4 X 6 sq. mm + 2 X 6 sq. mm earth wire (qty assumed from main panel)		
46		Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.		
i)		25 mm		

S.No	Item	Description	Recommended Make / Approved Material	Remarks
47		Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.		
48		Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.		
49		Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/ Isolator)		
i)		6 way (4 + 12), Double door		
50		Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
i)		40 amps		
51		Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
i)		40 amps		
52		Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
i)		Single pole		
53		Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.		
54		SITC OF 9 W LED 6500 K Slim, compact, aluminum die cast edge lit panel. Recess mounted round fixture with opal diffuser and separate electronic driver.	Havells or equivalent	
i)		SITC of 5 W WH LED Mirror Light		
ii)		Supply installation testing commissioning of 10W Wall bracket light		
iii)		Supply installation testing commissioning of Exhaust Fan Heavy Duty		
iv)		Supply installation testing commissioning of 1200 MM Ceiling fan		
55		Supply, Installation, Testing & Commissioning of Network WDR 2MP IR Bullet Camera having 1/2.8" 2 Megapixel progressive CMOS, 2.7 mm - 13.5 mm MFZ Lens, True day/night (IR-cut filter), Wide dynamic range up to 120 dB, Low light performance down to 0.002 Lux / F1.5 (color, 30IRE), 0 Lux (IR ON), Up to 197 ft (60 m) IR illumination, H.264/H.264B/H.265/Smart Codec/MPEG (Sub Stream), Support up to Up to 128 GB micro SDHC card, Class 10 (not included), DC12V or PoE (802.3af)(Class 0), IP67 INGRESS PROTECTION ,ONVIF Profile S/G/Q, FCC Part 15B, EN 55032, EN 50130-4, UL 60950-1, ROHS- EN 62368-1, certifications, etc as required.	HONEYWELL/CP PLUS/HIKVISION or equivalent	
56		Supply, Installation, Testing, Commissioning, Integration of 8-Channel 4K NVRs:- Third-party network cameras supported Up to 5 Megapixels resolution recording With 2 SATA Port up to 12 TB Supported Support 1-ch HDMI, 1-ch VGA, HMDI at up to 4K(3840x2160) resolution 4-ch network cameras can be connected with 40M/60M/80M incoming bandwidth Support dual-os to ensure high reliability of system running Support various VCA detection alarm and VCA search Support H.265/H.264/MPEG4 video formats		
57		Supply, installation, testing and commissioning of 4TB Surveillance Hard Disk S V SERIES-offer high capacities, durable reliability and performance tuned to the high-write workloads of today's 24x7 video surveillance systems as required.	SEAGATE/WD/HITACHI or equivalent	
58		Supplying, Laying & fixing of 15 MTR HDMI cable on surface as reqd.	Stackfine/Extron/Kramer or equivalent	
59		Supply, installation, testing and commissioning of 3 KVA UPS with 30 minutes back-up with inbuilt battery complete etc as required.	APC/MICTOTEK/VGUARD) or equivalent	
60		Supply, installation, testing and commissioning of 32" LED monitor includes Screen size :43" Diagonal Size, LED BLU type technology, resolution- 3840 X 2160 ,250 nits brightness, 4700:1 contrast ratio, stereo mini jack, HDMI I/p-2, USB-1, compatability for wifi, bluetooth suitable for operation on AC Power supply AC 240 V~ (+/- 10 %), 50/60 Hz, etc required.	SAMSUNG, Model - BE 43TH/SONY/LG or equivalent	
i)		Supply, Installation, Testing, Commissioning, Integration of 8+2 Giga uplink Port POE Switch 10/100/1000 MBPS (GIGABYTE)		
61	Drinking Water Cooler	Provision of stainless steel drinking water cooler with inbuilt purifier.	Capacity of drinking water cooler shall be selected based on expected user footfall/site requirements. Drinking water cooler shall conform to relevant BIS standards including IS 1475	
62	Signboards & Logo			
a	Letters	Provision of stainless steel letter signage displaying "National Highways Authority of India".	Dimensions, typography, colour scheme, illumination details and mounting arrangements shall be as per approved drawings.	
b	Monogram	Provision of LED illuminated glow signboard displaying Facilities with NHAI Monogram.		

Note - All the equipment above shall be from reputed brand/make.

Make list for Granite and ACP Sheet

Description	Brand/name	Code(if applicable)	image
Granite(op-1)	Chima pink	-	
Granite(op-2)	Onida orange granite	-	
Granite(op-3)	Colombo juparana granite	-	
ACP sheet	Alstone	AN1506	
ACP sheet	Aludecor	Ec-02 Tuscan clay	

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